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Distribution of hoverfly *Eupeodes corollae* from eastern India: new record from the states of Assam and Odisha

Hoverflies are dipteran insects under the family Syrphidae. From a taxonomic prospect, they share the common characteristic of possessing a spurious vein (unattached longitudinal vein) in the wing that bisects the radio-medial cross veins, cell cup closed near the margin of the wing, apex of vein R_{4+5} makes a C-shape, vein M strongly bends near the wing margin to end in vein R_{4+5} forming an apical crossvein, body generally with yellow or orange markings (Vockeroth & Thompson 1987). Hoverflies have pronounced ecological importance in terms of the spectrum of services it provides, which includes both pollination and predation, by virtue of which it influences the floral and faunal composition of its habitat (Jiang et al. 2022). The species *Eupeodes* (*Metasyrphus*) *corollae* (Fabricius 1794) under the subfamily Syrphinae, tribe Syrphini, is distributed in Afghanistan, Africa, Bhutan, China, Germany, Japan, Pakistan and Europe (as a whole). The Indian distribution of the species includes Arunachal Pradesh, Chhattisgarh, Himachal Pradesh, Jammu & Kashmir, Meghalaya, Punjab, Uttarakhand, and West Bengal, mainly covering the northern and northeastern parts of India (Dorji et al. 2023; Shah et al. 2014). *Eupeodes corollae* is known to predate on different aphid species including *Aphis craccivora*, *Brevicoryne brassicae*, *Myzus persicae*, *Rhopalosiphum padi* and *Schizaphis graminum*, which holds great ecological importance in terms of modulating the dynamics of

Field image of *Eupeodes* (*Metasyrphus*) *corollae* (Fabricius, 1794) (♀), 02 March 2023. © Arnob Chakrovorty.

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Table 1. Sampling sites along with their GPS location, elevation and vegetation patterns.

	Sampling Site	Latitude / Longitude	Altitude	Vegetation pattern
Assam				
1	Guwahati Railway station	26.1828 N, 91.7498 E	77 m	Highly metropolitan area with high anthropogenic disturbances. Very scanty vegetation.
Meghalaya				
2	North Eastern Hill University campus	25.6110 N, 91.8976 E	1,445 m	High altitude area with conifer type vegetation. Mainly dominated by pine trees.
3	Nohkalikai Waterfall, Cherrapunji	25.2723 N, 91.6905 E	1,456 m	High altitude grassland vegetation, along with bread patches of small shrubs of moderate height.
4	Seven Sisters Waterfall, Nohsngithiang	25.2452 N, 91.7376 E	1,201 m	High anthropogenic disturbance. Tropical montane grassland and shrubland.
Odisha				
5	Midubanda Waterfall, Daringbadi	19.8041 N, 84.0709 E	855 m	Tropical forest adjacent to a waterfall.

Map showing the sampling sites for the study on *Eupeodes* (*Metasyrphus*) *corollae*.

the entomofaunal community (Jiang et al. 2023; Mushtaq et al. 2023).

During two successive field surveys one from Assam to Meghalaya (March 2023) and another in Odisha (July 2023), this species was recorded, which accounts to be the first record of this species from the state of Assam and Odisha (Table 1). Two voucher specimens were collected and deposited to the entomological collection of the Department of Zoology, University of Kalyani (SYPEco2023/27ii/73) and iForNature – Nature Club educational collection (S2548). Rest of the specimens were briefly captured to observe and note the necessary taxonomic characters using a high-power field microscope (Weswox Stereoscopic Binocular Microscope STM-64) and was released thereafter. A total of 13 specimens were observed. Field images were captured by SONY alpha-58 (SLT-A58) camera with Sony 55–200mm f/4-5.6 SAM DT

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Lens. Images were further processed using the Hayear IC Measure Software. Measurements were calibrated using Erma Stage Micrometer (1mm–100 divisions) Model- Galaxy SMM101 (Erma Inc., Yushima, Bunkyo-ku, Tokyo, Japan) (Limsopatham et al. 2021; Chakrovorty et al. 2023). N = 13; ♀ = 8, ♂ = 5; Total Body Length = 8 ± 0.37mm; Wing Length = 6.5 ± 0.15mm.

Material Examined: 1♀, Guwahati Railway Station, Paltan Bazaar, Guwahati, Assam 781001, India, (26.1828 N, 91.7498 E), 27.ii.2023, A. Chakrovorty; 1♂, Midubanda Waterfall, Daringbadi, Odisha 762104, INDIA (19.8041 N, 84.0709 E), 09.vii.2023, A. Chakrovorty.

The taxonomic identification of the species was done based on the following characters: anterior crossvein before midportion of discal cell and downward loop on 3rd longitudinal vein missing (Syrphinae); Posterior margin of scutellum smooth, denticulation absent, scutellum covers tergite 1, antenna porrect and not drooping, abdomen slender (Syrphini); Abdomen longer than thorax, 3rd vein almost straight, abdomen with three pairs of well separated elongated nearly ovoid yellow spots reaching side margins, scutellum with pale hairs (*Eupeodes*); black area on frons reaching 1/3 to 1/4 of the distance between the base of antennae and the ocellus, missing the Y-shaped marking *E. corollae*.

This study documents the distribution of *Eupeodes* (*Metasyrphus*) *corollae* (Fabricius, 1794) from the state of Assam and Odisha for the first time. Assam falls under the general distributional range of the species in India but more importantly, the presence of the species in Odisha highlights a significant range extension of the species. This study critically highlights the importance of opportunistic entomofaunal sampling that can provide us with valuable data of great scientific relevance (Chakrovorty et al. 2020, 2023).

References

Chakrovorty, A., A. Garai, B. Bhattacharjee & A. Samadder (2020). Genetic aberration in a Continental Common Pierrot from West Bengal, India. Bugs R All #186, In: *Zoo's Print* 35(5): 111–112.

Chakrovorty, A., B. Bhattacharjee, A. Samadder & P. Chakraborty (2023). A note on the rediscovery of the sand wasp species, *Bembecinus proximus* (Handlirsch 1892) (Crabronidae: Bembicinae: Bembicini) from an urban habitat in Kolkata, West Bengal, India. *Indian Journal of Entomology* e23148: 1–7.

Dorji, U., K. Chimi, T. Jamtsho & Y. Dema (2023). Inventory of Insects in Wheat Fields at Bajo, Wangdue, Bhutan. *Bhutan Journal of Natural Resources and Development* 10(1): 28–43.

Jiang, S., H. Li & K. Wu (2023). Predation and Control Effect of *Eupeodes corollae* Fabricius (Diptera: Syrphidae) on Leguminous Plant Aphids. *Agronomy* 13(7): 1739.

Jiang, S., H. Li, L. He & K. Wu (2022). Population fitness of *Eupeodes corollae* Fabricius (Diptera: Syrphidae) feeding on different species of aphids. *Insects* 13(6): 494.

Limsopatham, K., T. Klong-Klaew, N. Fufuang, S. Sanit, K.L. Sukontason, K. Sukontason, P. Somboon & N. Sontigun (2021). Wing morphometrics of medically and forensically important muscid flies (Diptera: Muscidae). *Acta Tropica* 222: 106062.

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Mushtaq, S., S. Maalik, S.A. Rana, W. Majeed & N. Ehsan (2023). Developmental analysis and predatory potential of *Eupeodes corollae* (Fabricius 1794) (Diptera: Syrphidae) against aphids: A practical approach of biological control. *Pakistan Journal of Agricultural Sciences* 60(1): 185–191.

Shah, G.M., U. Jan & A.A. Wachkoo (2014). A checklist of hoverflies (Diptera: Syrphidae) in the western Himalaya, India. *Acta Zoologica Academiae Scientiarum Hungaricae* 60(4): 283–305.

Vockeroth, J.R. & F.C. Thompson (1987). Syrphidae, pp.712–743. In: McAlpine (editor). *Manual of Nearctic Diptera. Volume 2*. Biosystematics Research Centre, Ottawa, Ontario, Canada, 1332pp.

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